

学 位 論 文 要 旨

Household participation in Payments for Ecosystem Services: Case studies from Mozambique

「生態系サービスに対する支払い(PES)」への世帯参加—モザンビークの事例から—

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Payments for ecosystem services (PES) have received much praise and are increasingly perceived as a promising tool to ensure the protection of global ecosystems as well as being able to help alleviate poverty in areas rich in ecosystem services. Communities in developing countries are the main targets where most PES programs are being introduced, without knowing the real impact of these programs will have on the community. Some organizations that introduce these kinds of programs in the community level, believe that when provide financial incentives to poor communities automatically create conditions for alleviating poverty. Following this approach, this research tries to understand the factors influencing the household to participate in forest carbon sequestration project, economic contribution of forest resources and carbon sales to the total household income participants and finally, the overall impact for both participants and non-participants living in the same community. The present study was conducted in the N'hambita regulado in the district of Gorongosa, Sofala province, Mozambique. The regulado is partly inside the Gorongosa National Park and since 2003 the N'hambita Community Forest Carbon Program started, aiming to improve the livelihoods of the local people by implementing sustainable land-use systems in their farm-land.

The first part of this thesis investigates the factors influencing rural households' decision to participate in the project, based on data collected through a survey of 115 households, using factor analysis and multiple regressions. Factor analysis has shown that the main factors influencing the household decision to participate in the project are latent variables labeled as economic benefits, followed by social inclusion and forest conservation accounting,

with 31%, 19% and 14% of the total variance respectively. Multinomial logistic regression demonstrates that the gender, marital status, household age, the educational level of the head, land area, distance from the project centre and source of income are important variables in explaining the level of participation of the three factors.

The second part of this thesis examines the economic contribution of forest resources including the income of carbon sales to the total household income in, based on data collected through a systematic questionnaire survey of 115 households, randomly selected in N'hambita community. The study found that the forest income and income generated from carbon sales, contributed 15% and 21% respectively, almost roughly equal to the contribution of crop income that was estimated in 46% of total household income. Income from carbon sales was top second most important after crop income, followed by forest income, livestock and last off-farm income. While income from carbon sales represents 32% of the total household income for the poorest quintile, the contribution drops to 8% for the wealthiest quintile. Forest income and carbon sales have important income-equalizing potential among the rural households, especially to the poorest quintiles.

The third and last part of this thesis examines whether the N'hambita Community Forest Carbon Program can significantly benefit or not the local people, based on data collected through a survey of 150 household participants and non-participants. The Sustainable Livelihoods Approach (SLA) was used, based on five assets: financial, human, social, physical and natural. The study shows that the PES programme has had a significant impact on financial assets, mostly for the poorest households by income generated from carbon sales. There have been important benefits in terms of human assets through trainings provided to the community extension officers and also the forestry technicians which are responsible to monitoring of forest biomass in existing communities and disseminate good practices of the forest with the community members. The PES programme has had a considerable impact on social organization; by encouraging and promoting activities to the community members have better access to basic services such as credit for the development of their private activities, including the business development for income generation, collective activities such as controlling the wildfire and access to land tenure. There has been a positive impact on the recovery of forest landscapes in the area, contributing to improvements in natural assets, and also a slightly positive effect, particularly in relation to physical assets.